Notice of Allowability	Application No.	Applicant(s)	
	09/656,393	LEVINE ET AL.	
	Examiner	Art Unit	
	Andre Boyce	3623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *Applicant's amendment filed May 29, 2007*.

2. ☒ The allowed claim(s) is/are *1-21 and 26-49*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

TARIQ R. HAFIZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600

DETAILED ACTION

1. This action is in response to Applicant's amendment filed May 29, 2007. Claims 1, 18, 26 and 43 have been amended. Claims 1-21 and 26-49 are pending.

Examiner's Amendment

2. An Examiner's Amendment to the record appears below. Should changes and/or additions be unacceptable to Applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

3. Authorization for this Examiner's Amendment was given in a telephone interview with Richard Warther on August 3, 2007. The application has been amended as follows:

In the claims:

1. (Currently amended) A computer implemented method for managing mobile workers in an object oriented programming environment comprising the steps of:

classifying within a database of a computer a plurality of target objects corresponding to facilities assets to be worked on by a mobile worker;

defining attributes of each target object, including any tasks to be performed on each target object;

scheduling mobile workers for the tasks to be performed on target objects by running a rule engine to determine algorithms based on a utility function for partitioned jobs and mobile workers wherein different algorithms are selected and used for different partitions to schedule jobs and mobile workers in selected different regions, such that an algorithm is selected based on a weighted sum that is calculated from the possible number of work schedules, jobs and mobile workers for each partition, wherein a selected policy for a job environment determines how the mobile workers, jobs and work schedules are partitioned;

outputting a schedule of jobs to the mobile workers, and further comprising the step of creating jobs as a collection of tasks for a target that is to be scheduled and controlled by a policy as the definitions, rules and business factors that control the behavior of system agents, comprising a planner agent that inventories items requiring work and determines tasks to schedule, the skills required to complete the tasks and material needs;

~~a schedule agent that matches~~ matching skill resources to the demands of the job and ~~creates~~ creating a proposed schedule via a schedule agent;

~~a dispatcher agent for~~ tracking the location and status of the ~~workforce~~ mobile workers via a dispatcher agent;

~~a job state manager that maintains~~ maintaining the state of active jobs and ~~determines~~ determining which jobs transition to new states via a job state manager;

~~an event bus operative with the system agents and database, wherein said system agents communicate~~ communicating across [[the]] an event bus via the system

agents with the database and rule engine for implementing system agent functions based on events passed over the event bus; and

querying a simulator database for data to determine the effects of a policy change on planning and scheduling of jobs and workers using the different algorithms and partitions, via a simulator module and simulator database from which data has been copied from the database for target objects ~~wherein the simulator module queries the simulator database for data to determine the effects of a policy change on planning and scheduling of jobs and workers using the different algorithms and partitions~~.

18. (Currently amended) A computer implemented method for managing mobile workers in an object oriented programming environment comprising the steps of:

classifying attributes of each target object, including the tasks to be performed on each target object;

building user configured system agents and software components that automate [[the]] a system environment for managing mobile workers;

scheduling mobile workers for the tasks to be performed on target objects by running a rule engine to determine algorithms based on a utility function for partitioned jobs and mobile workers wherein different algorithms are selected and used for different partitions to schedule jobs and mobile workers in selected different regions, such that an algorithm is selected based on a weighted sum that is calculated from the possible number of work schedules, jobs and mobile workers for each partition, wherein a

selected policy for a job environment determines how the mobile workers, jobs and work schedules are partitioned;

configuring system agents and software components with user configured settings of a policy database that are reflective of a particular business;

outputting a schedule of jobs to the mobile workers, and further comprising the step of creating jobs as a collection of tasks for a target that is to be scheduled and controlled by a policy as the definitions, rules and business factors that control the behavior of system agents, comprising a planner agent that inventories items requiring work and determines tasks to schedule, the skills required to complete the tasks and material needs;

~~a schedule agent that matches~~ matching skill resources to the demands of the job and ~~creates~~ creating a proposed schedule via a schedule agent;

~~a dispatcher agent for~~ tracking the location and status of the ~~workforce~~ mobile workers via a dispatcher agent;

~~a job state manager that maintains~~ maintaining the state of active jobs and ~~determines~~ determining which jobs transition to new states via a job state manager;

~~an event bus operative with the system agents and database, wherein said system agents communicate~~ communicating across [[the]] an event bus via the system agents with the database and rule engine for implementing system agent functions based on events passed over the event bus; and

querying a simulator database for data to determine the effects of a policy change on planning and scheduling of jobs and workers using the different algorithms

and partitions, via a simulator module and simulator database from which data has been copied from the database for target objects ~~wherein the simulator module queries the simulator database for data to determine the effects of a policy change on planning and scheduling of jobs and workers using the different algorithms and partitions~~.

26. (Currently amended) A computer implemented method for managing mobile workers in an object oriented programming environment comprising the steps of:

classifying within a database of a computer a plurality of target objects corresponding to facilities assets to be worked on by a mobile worker;

defining any attributes of each target object, including any tasks to be performed on each target object;

scheduling mobile workers for the tasks to be performed on target objects by running a rule engine to determine algorithms based on a utility function for partitioned jobs and mobile workers wherein different algorithms are selected and used for different partitions to schedule jobs and mobile workers in selected different regions, such that an algorithm is selected based on a weighted sum that is calculated from the possible number of work schedules, jobs and mobile workers for each partition, wherein a selected policy for a job environment determines how the mobile workers, jobs and work schedules are partitioned; and further comprising the step of

creating jobs as a collection of tasks for a target that is to be scheduled and controlled by a policy as the definitions, rules and business factors that control the behavior of system agents, comprising a planner agent that inventories items requiring

work and determines tasks to schedule, the skills required to complete the tasks and material needs;

~~a schedule agent that matches~~ matching skill resources to the demands of the job and ~~creates~~ creating a proposed schedule via a schedule agent;

~~a dispatcher agent for~~ tracking the location and status of the ~~workforce~~ mobile workers via a dispatcher agent;

~~a job state manager that maintains~~ maintaining the state of active jobs and ~~determines~~ determining which jobs transition to new states via a job state manager;

~~an event bus operative with the system agents and database, wherein said system agents communicate~~ communicating across [[the]] an event bus via the system agents with the database and rule engine for implementing system agent functions based on events passed over the event bus;

establishing a simulator database based on data copied from the database of target objects and running a simulator module to establish policy values in a simulation of a working of a system environment to determine a policy change on planning and scheduling of jobs and workers using the different algorithms and partitions.

43. (Currently amended) A system for managing mobile workers comprising:

a plurality of target objects classified within a database of a computer corresponding to facilities assets to be worked on by a mobile worker, each target object having defined attributes, including any tasks to be performed on each target object; and

a rule engine contained within the computer that is operable to determine any algorithms based on a utility function for partitioned jobs and mobile workers wherein different algorithms are selected and used for different partitions to schedule jobs and mobile workers in selected different regions, such that an algorithm is selected based on a weighted sum that is calculated from the possible number of work schedules, jobs and mobile workers for each partition, wherein a selected policy for a job environment determines how the mobile workers, jobs and work schedules are partitioned, and heuristics to be used to schedule mobile workers for the tasks to be performed, and further comprising jobs that are formed as a collection of tasks for a target that is to be scheduled and controlled by a policy as the definitions, rules and business factors, and system agents that are controlled by the policy, said system agents comprising

a planner agent that inventories items requiring work and determines tasks to schedule, the skills required to complete the tasks and material needs;

a schedule agent that matches skill resources to the demands of the job and creates a proposed schedule;

a dispatcher agent for tracking the location and status of the workforce;

a job state manager that maintains the state of active jobs and determines which jobs transition to new states;

an event bus operative with the system agents and database, wherein said system agents communicate across the event bus with the database and rule engine for implementing system agent functions based on events passed over the event bus; and

a simulator module and simulator database from which data has been copied from the database for target objects wherein the simulator module queries the simulator database for data to determine the effects of a policy change on planning and scheduling of jobs and workers using the different algorithms and partitions.

Reasons for Allowance

4. Claims 1-21 and 26-49 are allowed.

5. The following is an examiner's statement of reasons for allowance:

With respect to independent claims 1, 26 and 43, none of the prior art of record, taken individually or in any combination, teach inter alia classifying within a database of a computer a plurality of target objects corresponding to facilities assets to be worked on by a mobile worker; defining attributes of each target object, including any tasks to be performed on each target object; and scheduling mobile workers for the tasks to be performed on target objects by running a rule engine to determine algorithms based on a utility function for partitioned jobs and mobile workers wherein different algorithms are selected and used for different partitions to schedule jobs and mobile workers in selected different regions, such that an algorithm is selected based on a weighted sum that is calculated from the possible number of work schedules, jobs and mobile workers for each partition, wherein a selected policy for a job environment determines how the mobile workers, jobs and work schedules are partitioned.

With respect to claim 18, none of the prior art of record, taken individually or in any combination, teach inter alia classifying attributes of each target object, including the tasks to be performed on each target object; building user configured system agents and software components that automate a system environment for managing mobile workers; scheduling mobile workers for the tasks to be performed on target objects by running a rule engine to determine algorithms based on a utility function for partitioned jobs and mobile workers wherein different algorithms are selected and used for different partitions to schedule jobs and mobile workers in selected different regions, such that an algorithm is selected based on a weighted sum that is calculated from the possible number of work schedules, jobs and mobile workers for each partition, wherein a selected policy for a job environment determines how the mobile workers, jobs and work schedules are partitioned; and configuring system agents and software components with user configured settings of a policy database that are reflective of a particular business.

6. The prior art references most closely resembling Applicant's claimed invention are Sisley et al (USPN 5,943,652) and Draves (USPN 5,873,124).

Sisley et al disclose assignment and scheduling (A/S) system 12, including field service environment characterized by three representational sets, namely a call set defined by a plurality of customer service calls, and assignment set defined by a plurality of assignments of calls to the technicians. In addition, the A/S system 12 generates assignment and scheduling recommendations, representing modifications

of the assignment set and searches for assignment solutions, including attributes for each of the service calls and attributes for each of the assignments.

Draves discloses a computer system 40 including hand-held computers and internet terminals able to perform system-related tasks such as task scheduling.

However, with respect to claims 1, 26 and 43, neither Sisley et al nor Draves disclose classifying within a database of a computer a plurality of target objects corresponding to facilities assets to be worked on by a mobile worker; defining attributes of each target object, including any tasks to be performed on each target object; and scheduling mobile workers for the tasks to be performed on target objects by running a rule engine to determine algorithms based on a utility function for partitioned jobs and mobile workers wherein different algorithms are selected and used for different partitions to schedule jobs and mobile workers in selected different regions, such that an algorithm is selected based on a weighted sum that is calculated from the possible number of work schedules, jobs and mobile workers for each partition, wherein a selected policy for a job environment determines how the mobile workers, jobs and work schedules are partitioned.

With respect to claim 18, neither Sisley et al nor Draves disclose classifying attributes of each target object, including the tasks to be performed on each target object; building user configured system agents and software components that automate a system environment for managing mobile workers; scheduling mobile workers for the tasks to be performed on target objects by running a rule engine to determine algorithms based on a utility function for partitioned jobs and mobile

workers wherein different algorithms are selected and used for different partitions to schedule jobs and mobile workers in selected different regions, such that an algorithm is selected based on a weighted sum that is calculated from the possible number of work schedules, jobs and mobile workers for each partition, wherein a selected policy for a job environment determines how the mobile workers, jobs and work schedules are partitioned; and configuring system agents and software components with user configured settings of a policy database that are reflective of a particular business.

7. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andre Boyce whose telephone number is (571) 272-6726. The examiner can normally be reached on 9:30-6pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq Hafiz can be reached on (571) 272-6729. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

adb
August 5, 2007

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